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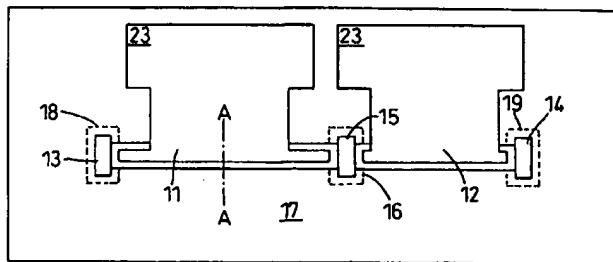
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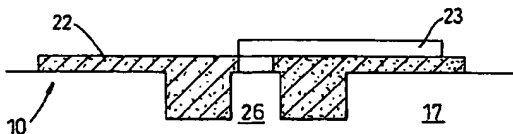
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(54) Title: **MULTI-SECTION LASER WITH PHOTONIC CRYSTAL MIRRORS**

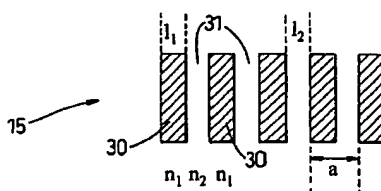


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*a*



*b*



*c*

(57) Abstract: Photonic crystal material is used to couple two or more cavities of an optical device to provide tuneable laser output. The monolithically integrated optical device includes: a first optical cavity having a first optical axis and supporting first optical modes; a second optical cavity having a second optical axis and second, different, optical modes than the first optical cavity, the first and second optical cavities being laterally offset from one another and at least partially separated by a photonic crystal material in which the dielectric function of the material exhibits a periodic variation as a function of linear distance through the material, such that optical coupling between the first and second cavities is achieved through the photonic crystal. Multiple cavities can also be integrated in a similar fashion.